



65691219amended.APP  
SEQUENCE LISTING

<110> CHAMBON, PIERRE  
GHYSELINCK, NORBERT B.  
SCHNUTGEN, FRANK

<120> METHOD FOR THE STABLE INVERSION OF DNA SEQUENCE BY  
SITE-SPECIFIC RECOMBINATION AND DNA VECTORS AND  
TRANSGENIC CELLS THEREOF

<130> 065691/0219

<140> 09/843,150

<141> 2001-04-30

<160> 57

<170> PatentIn Ver. 2.1

<210> 1

<211> 60

<212> DNA

<213> Artificial sequence

<220>

<223> Description of Artificial sequence: R1  
synthetic oligonucleotide

<400> 1

aattgataac ttcgtatagc atacattata cgaagttatc caagcttcac catcgacccg 60

<210> 2

<211> 60

<212> DNA

<213> Artificial sequence

<220>

<223> Description of Artificial sequence: R2  
synthetic oligonucleotide

<400> 2

aattcgggtc gatggtgaag cttggataac ttcgtataat gtagtctata cgaagttatc 60

<210> 3

<211> 61

<212> DNA

<213> Artificial sequence

<220>

<223> Description of Artificial sequence: R3  
synthetic oligonucleotide

<400> 3

aattgccaag catcaccatc gaccataac ttcgtatagt atacattata cgaagttatc 60  
gacccataac 61

<210> 4

<211> 61

<212> DNA

<213> Artificial sequence

<220>

<223> Description of Artificial sequence: R4  
synthetic oligonucleotide

<400> 4

aattcgataa cttcgataa tgtatactat acgaagttat gggtcgatgg tgatgcttgg 60  
c 61

<210> 5

<211> 67

<212> DNA

<213> Artificial sequence

<220>

<223> Description of Artificial sequence: R5  
synthetic oligonucleotide

<400> 5

ctagtggatc cgataacttc gtataatgta tgctatacga agttatccaa gcatcaccat 60  
cgaccct 67

<210> 6

<211> 67

<212> DNA

<213> Artificial sequence

<220>

<223> Description of Artificial sequence: R6  
synthetic oligonucleotide

<400> 6

ctagagggtc gatggatgatg cttggataac ttcgtatagc atacattata cgaagttatc 60  
ggatcca 67

<210> 7

<211> 60

<212> DNA

<213> Artificial sequence

<220>

<223> Description of Artificial sequence: R7  
synthetic oligonucleotide

<400> 7

ctagtccaga ttcaccatc gaccataac ttcgtataat gtatactata cgaagttatt 60

<210> 8

<211> 60

<212> DNA

<213> Artificial sequence

<220>

<223> Description of Artificial sequence: R8  
synthetic oligonucleotide

<400> 8

ctagaataac ttcgtatagt atacattata cgaagttatg ggtcgatggt gagatctgga 60

<210> 9  
<211> 28  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Description of Artificial sequence: R9  
synthetic oligonucleotide

<400> 9  
ggggaattct tctgtacag ctcgtcca

28

<210> 10  
<211> 32  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Description of Artificial sequence: R10  
synthetic oligonucleotide

<400> 10  
ggggaattcc catggtgagc aagggcgagg ag

32

<210> 11  
<211> 46  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Description of Artificial sequence: R11  
synthetic oligonucleotide

<400> 11  
ctatcagggc gatggccac tacgtgttct gaggcgaaa gaacca

46

<210> 12  
<211> 47  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Description of Artificial sequence: R12  
synthetic oligonucleotide

<400> 12  
ggaatagctc agaggccgag gcggcctcgg cctctgcata aataaaa

47

<210> 13  
<211> 20  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Description of Artificial sequence: Synthetic  
oligonucleotide

<400> 13

gtgcatctgc cagtttgagg

&lt;210&gt; 14

&lt;211&gt; 17

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial sequence: Synthetic oligonucleotide

&lt;400&gt; 14

aatacgactc actatag

17

&lt;210&gt; 15

&lt;211&gt; 40

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial sequence: G1 synthetic oligonucleotide

&lt;400&gt; 15

ggccgcataa cttcgataa tgtatgctat acgaagttat

40

&lt;210&gt; 16

&lt;211&gt; 40

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial sequence: G2 synthetic oligonucleotide

&lt;400&gt; 16

ggccataact tcgtatagca tacattatac gaagttatgc

40

&lt;210&gt; 17

&lt;211&gt; 50

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial sequence: G3 synthetic oligonucleotide

&lt;400&gt; 17

tataatgtat gctatacgaa gttattcctt ggcctggaat ttgcagaatt

50

&lt;210&gt; 18

&lt;211&gt; 50

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial sequence: G4 synthetic oligonucleotide

<400> 18  
gccccggggga tccactagtt ctagatgtct ccaccgctga atgaaaagca 50

<210> 19  
<211> 64  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Description of Artificial sequence: G5  
synthetic oligonucleotide

<400> 19  
ctagtaggga taaagttttc cggaattccg ctctagactc atcaatgtta tcttatcatg 60  
tcta 64

<210> 20  
<211> 64  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Description of Artificial sequence: G6  
synthetic oligonucleotide

<400> 20  
ctagtagaca tgataagata acattgatga gtctagagcg gaattccgga aaactttatc 60  
cata 64

<210> 21  
<211> 64  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Description of Artificial sequence: G7  
synthetic oligonucleotide

<400> 21  
gctacgtaat aacttcgtat aatgtatact atacgaagtt atgggtcgat ggtgagatct 60  
ccgc 64

<210> 22  
<211> 64  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Description of Artificial sequence: G8  
synthetic oligonucleotide

<400> 22  
ggagatctca ccacgaccc ataacttcgt atagtataca ttatacgaag ttattacgta 60  
gcgc 64

<210> 23  
<211> 12

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

<223> Description of Artificial sequence: G9  
synthetic oligonucleotide

&lt;400&gt; 23

gatcttacgt aa

12

&lt;210&gt; 24

&lt;211&gt; 42

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

<223> Description of Artificial sequence: G10  
synthetic oligonucleotide

&lt;400&gt; 24

ggccgggaag ttcctattct cttagaaagta taggaacttc cc

42

&lt;210&gt; 25

&lt;211&gt; 42

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

<223> Description of Artificial sequence: G10  
synthetic oligonucleotide

&lt;400&gt; 25

ggccgggaag ttcctatact ttctagagaa taggaacttc cc

42

&lt;210&gt; 26

&lt;211&gt; 60

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

<223> Description of Artificial sequence: G12  
synthetic oligonucleotide

&lt;400&gt; 26

aagataactt cgtataatgt atgctatacg aagttatcca agcatcacca tcgacccggt 60

&lt;210&gt; 27

&lt;211&gt; 60

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

<223> Description of Artificial sequence: G13  
synthetic oligonucleotide

&lt;400&gt; 27

aacgggtcga tggtgatgct tggataactt cgtatagcat acattatacg aagttatctt 60

&lt;210&gt; 28

&lt;211&gt; 60

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

<223> Description of Artificial sequence: G14  
synthetic oligonucleotide

&lt;400&gt; 28

aagccaagca tcaccatcga ccataactt cgtataatgt atactatacg aagttatggt 60

&lt;210&gt; 29

&lt;211&gt; 60

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

<223> Description of Artificial sequence: G15  
synthetic oligonucleotide

&lt;400&gt; 29

aacataactt cgtatagtat acattatacg aagttatggg tcgatggtga tgcttggtt 60

&lt;210&gt; 30

&lt;211&gt; 51

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

<223> Description of Artificial sequence: J1  
synthetic oligonucleotide

&lt;400&gt; 30

actagtggat cccccgggct gcaggaattc taccgggtag gggaggcgct t 51

&lt;210&gt; 31

&lt;211&gt; 79

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

<223> Description of Artificial sequence: J2  
synthetic oligonucleotide

&lt;400&gt; 31

gtatcgataa gcttgatatt gccgctcgag acttacctga ctggccgtcg ttttacagtc 60  
agaagaactc gtcaagaag 79

&lt;210&gt; 32

&lt;211&gt; 58

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

<223> Description of Artificial sequence: J3  
synthetic oligonucleotide

&lt;400&gt; 32

ctcgcgagga attcaaccag aagttcctat tctctagaaa gtataggaac ttccagct 58

<210> 33

<211> 58

<212> DNA

<213> Artificial sequence

<220>

<223> Description of Artificial sequence: J4  
synthetic oligonucleotide

<400> 33

ggaagttcct atactttcta gagaatagga acttctgggt gaattcctcg cgagagct 58

<210> 34

<211> 61

<212> DNA

<213> Artificial sequence

<220>

<223> Description of Artificial sequence: J5  
synthetic oligonucleotide

<400> 34

aatgcctacc ggaccatcat aacttcgtat aatgtatact atacgaagtt ataagcttgc 60  
a 61

<210> 35

<211> 61

<212> DNA

<213> Artificial sequence

<220>

<223> Description of Artificial sequence: J6  
synthetic oligonucleotide

<400> 35

agcttataac ttcgtatagt atacattata cgaagttatg atgggccggt aggcatttgc 60  
a 61

<210> 36

<211> 59

<212> DNA

<213> Artificial sequence

<220>

<223> Description of Artificial sequence: J7  
synthetic oligonucleotide

<400> 36

gagctcataa cttcgtataa tgtatgctat acgaagttat ccaagcatca ccatatgca 59

<210> 37

<211> 59

<212> DNA

<213> Artificial sequence

<220>



<223> Description of Artificial sequence: J8  
synthetic oligonucleotide

<400> 37  
tatggtgatg cttggataac ttcgtatagc atacattata cgaagttatg agctctgca 59

<210> 38  
<211> 41  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Description of Artificial sequence: J9  
synthetic oligonucleotide

<400> 38  
tcgacataac ttcgtataat gtatactata cgaagttata c 41

<210> 39  
<211> 41  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Description of Artificial sequence: J10  
synthetic oligonucleotide

<400> 39  
tcgagtataa cttcgtatag tatacattat acgaagttat g 41

<210> 40  
<211> 48  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Description of Artificial sequence: J11  
synthetic oligonucleotide

<400> 40  
tcgaagaagt tcctaattcta tttgaagtat aggaacttcg cggccgca 48

<210> 41  
<211> 48  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Description of Artificial sequence: J12  
synthetic oligonucleotide

<400> 41  
tcgatgcggc cgcgaagttc ctatacttca aatagattag gaacttct 48

<210> 42  
<211> 48  
<212> DNA  
<213> Artificial sequence

<220>  
 <223> Description of Artificial sequence: J13  
 synthetic oligonucleotide  
 <400> 42  
 ccgggccttg gcctggaatt tgcactctgt tgacaaccat tgtctcct 48  
 <210> 43  
 <211> 40  
 <212> DNA  
 <213> Artificial sequence  
 <220>  
 <223> Description of Artificial sequence: J14  
 synthetic oligonucleotide  
 <400> 43  
 gtaatacgac tcactatagg gaattccgcc cctctccctc 40  
 <210> 44  
 <211> 40  
 <212> DNA  
 <213> Artificial sequence  
 <220>  
 <223> Description of Artificial sequence: J15  
 synthetic oligonucleotide  
 <400> 44  
 gagggagagg ggcggaattc cctatagtga gtcgtattac 40  
 <210> 45  
 <211> 46  
 <212> DNA  
 <213> Artificial sequence  
 <220>  
 <223> Description of Artificial sequence: J16  
 synthetic oligonucleotide  
 <400> 45  
 ctccaccgct gaatgaaaag cagcatgggt gtggcaagct tatcat 46  
 <210> 46  
 <211> 18  
 <212> DNA  
 <213> Artificial sequence  
 <220>  
 <223> Description of Artificial sequence: Synthetic  
 oligonucleotide  
 <400> 46  
 taacaatttc acacagga 18  
 <210> 47  
 <211> 36

<212> DNA  
 <213> Artificial sequence  
 <220>  
 <223> Description of Artificial sequence: QT  
 synthetic oligonucleotide  
 <400> 47  
 ccagtgcgca gactgacgag gactcgagct caagct 36

<210> 48  
 <211> 18  
 <212> DNA  
 <213> Artificial sequence  
 <220>  
 <223> Description of Artificial sequence: Q0  
 synthetic oligonucleotide  
 <400> 48  
 ccagtgcgca gactgacg 18

<210> 49  
 <211> 20  
 <212> DNA  
 <213> Artificial sequence  
 <220>  
 <223> Description of Artificial sequence: Neo1  
 synthetic oligonucleotide  
 <400> 49  
 accgcttcct cgtgctttac 20

<210> 50  
 <211> 18  
 <212> DNA  
 <213> Artificial sequence  
 <220>  
 <223> Description of Artificial sequence: Q1  
 synthetic oligonucleotide  
 <400> 50  
 gaggactcga gctcaagc 18

<210> 51  
 <211> 20  
 <212> DNA  
 <213> Artificial sequence  
 <220>  
 <223> Description of Artificial sequence: Neo2  
 synthetic oligonucleotide  
 <400> 51  
 gccttcttga cgagttcttc 20

&lt;210&gt; 52

&lt;211&gt; 34

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

<223> Description of Artificial sequence: LoxP1  
synthetic oligonucleotide

&lt;400&gt; 52

ataacttcgt ataatgtatg ctatacgaag ttat

34

&lt;210&gt; 53

&lt;211&gt; 34

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

<223> Description of Artificial sequence: Lox511  
synthetic oligonucleotide

&lt;400&gt; 53

ataacttcgt ataatgtata ctatacgaag ttat

34

&lt;210&gt; 54

&lt;211&gt; 8693

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

<223> Description of Artificial sequence: DNA  
sequence of plasmid pFLEXR

&lt;220&gt;

&lt;223&gt; Position 1 to 360 SV40 promotor, sense

&lt;220&gt;

<223> Position 365 to 1015 rabbit beta globin intron,  
sense

&lt;220&gt;

&lt;223&gt; Position 1050 loxP1 site, antisense

&lt;220&gt;

&lt;223&gt; Position 1130 lox511 site, antisense

&lt;220&gt;

&lt;223&gt; Position 1170 to 2050 EGFP polyA gene, sense

&lt;220&gt;

&lt;223&gt; Position 2060 to 5700 LacZ polyA gene, antisense

&lt;220&gt;

&lt;223&gt; Position 5710 loxP1 site, sense

&lt;220&gt;

&lt;223&gt; Position 5790 lox511 site, sense

&lt;220&gt;

&lt;223&gt; Position 5830 to 8693 vector sequence

&lt;400&gt; 54

```

gtcgaacttct gaggcggaaa gaaccagctg tggaatgtgt gtcagttagg gtgtggaaaag 60
tccccaggct ccccgagcagg cagaagtatg caaagcatgc atctcaatta gtcagcaacc 120
aggtgtggaa agtccccagg ctccccagca ggcagaagta tgcaaagcat gcatctcaat 180
tagtcagcaa ccatagtcctt gcccctaact ccgcccattc cgcccctaac tccgcccagt 240
tccgcccatt ctccgccccca tggctgacta atttttttta tttatgcaga ggccgaggcc 300
gcctcggcct ctgagctatt ccagaagtag tgaggaggct tttttggagg cctaggcctt 360
tgcaaaaagc tggatcgatc ctgagaactt cagggtgagt ttggggaccc ttgattgttc 420
tttctttttc gctattgtaa aattcatgtt atatggaggg ggcaaagttt tcagggtgtt 480
gtttagaatg ggaagatgtc ccttgatca ccatggaccc tcatgataat tttgtttcct 540
tcactttcta ctctgttgac aaccattgtc tcctcttatt ttcttttcat tttctgtaac 600
tttttcgtta aacttttagct tgcatttgta acgaattttt aaattcactt ttgtttattt 660
gtcagattgt aagtactttc tctaactcact tttttttcaa ggcaatcagg gtatattata 720
ttgtacttca gcacagtttt agagaacaat tgttataatt aaatgataag gtagaatatt 780
tctgcatata aattctggct ggctggaaa tattcttatt ggtagaaaca actacatcct 840
gggtcatcatc ctgcctttct ctttatgggt acaatgatat acactgtttg agatgaggat 900
aaaatactct gagtccaaac cgggcccctc tgctaaccat gttcatgcct tcttctttt 960
cctacagctc ctgggcaacg tgctggttat tgtgctgtct catcattttg gcaaagaatt 1020
gtaatacagc tcactatagg cgaattgtat aacttcgtat agcatacatt atacgaagt 1080
atccaagctt caccatcgac ccgaattgcc aagcatcacc atcgacccat aacttcgtat 1140
agtatacatt atacgaagtt atcgaattcc catggtgagc aagggcgagg agctgttcac 1200
cggggtggtg cccatcctgg tcgagctgga cggcgacgta aacggccaca agttcagcgt 1260
gtccggcgag ggcgagggcg atgccaccta cgtcgaccac accctgaagt tcatctgcac 1320
caccggcaag ctgcccgtgc cctggcccac cctcgtagac accctgacct acggcggtga 1380
gtgcttcagc cgctaccctg accacatgaa gcagcacgac ttcttcaagt ccgccatgcc 1440
cgaaggctac gtccaggagc gcaccatctt cttcaaggac gacggcaact acaagaccg 1500
cgccgaggtg aagttcgagg gcgacaccct ggtgaaccgc atcgagctga agggcatcga 1560
cttcaaggag gacggcaaca tcctggggca caagctggag tacaactaca acagccaca 1620
cgtctatata atggccgaca agcagaagaa cggcatcaag gtgaacttca agatccgcca 1680
caacatcgag gacggcagcg tgcagctcgc cgaccactac cagcagaaca ccccatcgg 1740
cgacggcccc gtgctgctgc ccgacaacca ctacctgagc acccagtcgg ccctgagcaa 1800
agacccaac gagaagcgcg atcacatggt cctgctggag ttctgtagcg ccgcccggat 1860
cactctcggc atggacgagc tgtacaagta agaattcgga tcttattaaa gcagaacttg 1920
tttattgcag cttataatgg ttacaaataa agcaatagca tcacaaatth cacaataaaa 1980
gcattttttt cactgcattc tagttgtggt ttgtccaaac tcatcaatgt atcttatcat 2040
gtctggtcga ctctagtggg tccagacatg ataagataac attgatgagt ttggacaaac 2100
cacaactaga atgcagtga aaaaatgctt tatttgtgaa atttgtgatg ctattgcttt 2160
atttgaacc attataagct gcaataaaca agttccgagt ttgtcagaaa gcagaccaa 2220
cagcggttg aataatagcg agaacagaga aatagcggca aaaataatac ccgtatcact 2280
tttgctgata tggttgatgt catgtagcca aatcgggaaa aacgggaagt aggtcccat 2340
gataaaaaag taaaagaaaa agaataaacc gaacatccaa aagtttgtgt tttttaaata 2400
gtacataatg gatttcctta cgcgaatata ggcgagacat ggcctgccc gttattatta 2460
tttttgacac gagaccaact ggtaatggtg gcgaccggcg ctgagctgga attccgcca 2520
tactgacggg ctccaggagt cgtcgccacc aatccccata tggaaaccgt cgatattcag 2580
ccatgtgcct tcttcgcgt gcagcagatg gcgatggctg gtttccatca gttgctgtg 2640
actgtagcgg ctgatgttga actggaagtc gccgcgccac tgggtgtggc cataattcaa 2700
ttcgcgctc ccgcagcgca gaccgttttc gctcgggaag acgtacgggg tatacatgtc 2760
tgacaactga agatcccgag ggtcaaaaca ggcggcagta aggcggtcgg gatagtttt 2820
ttgcggcctt aatccgagcc agtttaccg ctctgctacc tgcgccagct ggcagttcag 2880
gccaatccgc gccgatgctg gtgtatcgct cgccacttca acatcaacgg taatcgccat 2940
ttgaccacta ccatcaatcc ggtaggtttt ccggtgata aataaggttt tcccctgatg 3000
ctgccacgcg tgagcggctg taatcagcac cgcacagca agtgtatctg ccgtgactg 3060
caacaacgct gcttcggcct ggtaatggcc gcgcgcttc cagcgttcga cccaggcgtt 3120
agggtaactg cgggtcgctt cacttacgcc aatgtcggtt tccagcgggt cacgggtgaa 3180
ctgatcgcg agcggcgctc gcagttgttt tttatcgcca atccacatct gtgaaagaaa 3240
gcctgactgg cggttaaatt gccaacgctt attaccagc tcgatgcaaa aatccatttc 3300
gctggtggtc agatgcggga tggcggtgga cgcggcggg agcgtcacac tgaggttttc 3360
cgccagacgc cactgctgcc aggcgtgat gtgcccggct tctgaccatg cggtcgcgtt 3420
cggttgcact acgcgactgt tgagccagag ttgcccggcg ctctccggct gcggtagt 3480
aggcagttca atcattgttt taccttgtgg agcagacatc agaggcactt caccgcttgc 3540
cagcggttta ccatccagcg ccaccatcca gtgcaggagc tcgttatcgc tatgacggaa 3600

```

## 65691219amended.APP

caggtattcg	ctggtcactt	cgatggtttg	ccccgataaa	cggaactgga	aaaactgctg	3660
ctggtgtttt	gcttccgtca	gcgctggatg	cggcgtgcgg	tcggcaaaga	ccgaccggtt	3720
catacagaac	tggcgcgtat	tcggcgatc	gccaaaatca	ccgccgtaag	ccgaccacgg	3780
gttgccgttt	tcatacatatt	taatcagcga	ctgatccacc	cagtcgccaga	cgaagccgcc	3840
ctgtaaaccg	ggatactgac	gaaacgcctg	ccagtattta	gcgaaaccgc	caagactggt	3900
acccatcgcg	tgggcgtatt	cgaaaggat	cagcgggcgc	gtctctccag	gtagcgaaag	3960
ccattttttg	atggaccatt	tcggcacagc	cggaaggggc	tggctctcat	ccacgcgcgc	4020
gtacatcggg	caaataatat	cggtgccgt	ggtgtcggct	ccgccgcctt	catactgcac	4080
cgggcgggaa	ggatcgacag	atttgatcca	gcgatacagc	gcgtcgtgat	tagcgccgtg	4140
gcctgattca	ttccccagcg	accagatgat	cacactcggg	tgattacgat	cgcgctgcac	4200
cattcgcggt	acgcgttcgc	tcacgcggcg	tagccagcgc	ggatcatcgg	tcagacgatt	4260
cattggcacc	atgccgtggg	tttcaatatt	ggcttcatcc	accacataca	ggccgtagcg	4320
gtcgcacagc	gtgtaccaca	gcggatgggt	cgataatgc	gaacagcgca	cggcgttaaa	4380
gttggtctgc	ttcatcagca	ggatattcctg	caccatcgtc	tgctcatcca	tgacctgacc	4440
atgcagagga	tgatgtctgt	gacgggttaac	gcctcgaatc	agcaacggct	tgccgttcag	4500
cagcagcaga	ccattttcaa	tcggcacctc	cggaaaaccg	acatcgcagg	cttctgcttc	4560
aatcagcgtg	ccgtcggcgg	tgtgcagttc	aaccaccgca	cgatagagat	tcgggatttc	4620
ggcgctccac	agtttcgggt	tttcgacgtt	cagacgtagt	gtgacgcgat	cggcataacc	4680
accacgctca	tcgataattt	caccgcccga	aggcgcgggtg	ccgctggcga	cctgcggttc	4740
accttgccat	aaagaaactg	ttaccgtag	gtagtacgc	aactcgccgc	acatctgaac	4800
ttcagctccc	agtacagcgc	ggctgaaatc	atcattaaag	cgagtggcaa	catggaaatc	4860
gctgatttgt	gtagtgggtt	tatgcagcaa	cgagacgtca	cggaatgc	cgctcatccg	4920
ccacatatcc	tgatcttcca	gataactgcc	gtcactccaa	cgcagacca	tcaccgcgag	4980
gcgggtttct	ccggcgcgta	aaaatgcgct	caggtcaaat	tcagacggca	aacgactgtc	5040
ctggccgtaa	ccgaccagc	gcccgttgca	ccacagatga	aacgccgagt	taacgccatc	5100
aaaaataatt	cgctctggc	cttctgtag	ccagctttca	tcaacattaa	atgtgagcga	5160
gtaacaaccc	gtcggattct	ccgtgggaac	aaacgcggga	ttgaccgtaa	tgggataggt	5220
tacgttggtg	tagatgggcg	catcgtaacc	gtgcactctg	cagtttgagg	ggacgacgac	5280
agtatcgcc	tcaggaagat	cgcactccag	ccagctttcc	ggcaccgctt	ctggtgccgg	5340
aaaccaggca	aagcgccatt	cgccattcag	gctgcgcaac	tgttgggaa	ggcgatcggt	5400
gcgggcctct	tcgctattac	gccagctggc	gaaaggggga	tgtgctgcaa	ggcgattaag	5460
ttgggtaacg	ccagggtttt	cccagtcacg	acgttgtaaa	acgacggcca	gtgccaaagt	5520
tggactcaaa	aaacttagca	attctgaagg	aaagtccttg	gggtcttcta	cctttctctt	5580
cttttttgcg	gaattccgga	aaactttatc	catctttgca	aagctttttg	caaaagccta	5640
ggcctccaaa	aaagcctcct	cactacttct	ggaatagctc	agaggccgtc	gaccccgga	5700
attcggatcc	gataacttcg	tataatgtat	gctatacgaa	gttatccaag	catcaccatc	5760
gacctctag	tccagatctc	accatcgacc	cataacttcg	tataatgtat	actatacgaa	5820
gttattctag	actcttccgc	ttctctgcct	actgactcgc	tgcgctcggt	cgttcggtg	5880
cggcgagcgg	tatcagctca	ctcaaaggcg	gtaatacggg	tatccacaga	atcaggggat	5940
aacgcaggaa	agaacatgtg	agcaaaaggc	cagcaaaagg	ccaggaaccg	taaaaaggcc	6000
gcgttgctgg	cgtttttcca	taggtccgc	ccccctgacg	agcatcacia	aaatcgacgc	6060
tcaagtcaga	ggtggcgaaa	cccagacagga	ctataaagat	accaggcggt	ttccccctgga	6120
agctccctcg	tgcgctctcc	tgttccgacc	ctgccgctta	ccggatacct	gtccgccttt	6180
ctcccttcgc	gaagcgtggc	gctttctcaa	tgctcacgct	gtaggtatct	cagttcggtg	6240
taggtcggtt	gctccaagct	ggcgtgtgtg	cacgaacccc	ccgttcagcc	cgaccgctgc	6300
gccttatccg	gtaactatcg	tcttgagtcc	aaccgggtaa	gacacgactt	atcgccactg	6360
gcagcagcca	ctggtaacag	gattagcaga	gcgaggtatg	taggcgggtg	tacagagttc	6420
ttgaagtggg	ggcctaacta	cggctacact	agaaggacag	tatttggtat	ctgcgctctg	6480
ctgaagccag	ttaccttcgg	aaaaagagtt	ggtagctctt	gatccggcaa	acaaaccacc	6540
gcgtgtagcg	gtggtttttt	tgtttgcaag	cagcagatta	cgcgagaaa	aaaaggatct	6600
caagaagatc	ctttgatctt	ttctacgggg	tctgacgctc	agtggaaacga	aaactcacgt	6660
taagggaatt	tggatcatgag	attatcaaaa	aggatcttca	cctagatcct	tttaaattaa	6720
aatgaagtt	ttaaatcaat	ctaaagtata	tatgagtaaa	cttgggtctga	cagttacca	6780
tgttaaatca	gtgaggcacc	tatctcagcg	atctgtctat	ttcgttcatc	catagttgcc	6840
tgactccccg	tcgtgtagat	aactacgata	cggaagggtc	taccatctgg	ccccagtgtc	6900
gcaatgatac	cgcgagaccc	acgctcaccg	gtccagatt	tatcagcaat	aaaccagcca	6960
gccggaagg	ccgagcgcag	aagtggctct	gcaactttat	ccgcctccat	ccagtctatt	7020
aattgttgcc	gggaagctag	agtaagtagt	tcgccagtta	atagtttgcg	caacgttggt	7080
gccattgcta	caggcatcgt	ggtgtcacgc	tcgtcgtttg	gtatggcttc	attcagctcc	7140
ggttcccaac	gatcaaggcg	agttacatga	tccccatgt	tgtgcaaaaa	agcggtagc	7200
tccttcggtc	tcccgatcgt	tgtcagaagt	aagtggccg	cagtgttatc	actcatggtt	7260
atggcagcac	tgcaaatctc	tcttactgtc	atgccatccg	taagatgctt	ttctgtgact	7320
ggtgagtact	caaccaagtc	attctgagaa	tagtgtatgc	ggcgaccgag	ttgctcttgc	7380

## 65691219amended.APP

```

ccggcggtcaa tacgggataa taccgcgcc catagcagaa ctttaaaagt gctcatcatt 7440
ggaaaacgtt cttcggggcg aaaactctca aggatcttac cgctgttgag atccagttcg 7500
atgtaacca ctcgtgcacc caactgatct tcagcatctt ttactttcac cagcgtttct 7560
gggtgagcaa aaacaggaag gcaaaatgcc gcaaaaaagg gaataagggc gacacggaaa 7620
tggtgaatac tcatactctt cttttttcaa tattattgaa gcatttatca gggttattgt 7680
ctcatgagcg gatacatatt tgaatgtatt tagaaaaata aacaaatagg ggttccgcgc 7740
acattttccc gaaaagtgcc acctgacgtc taagaaacca ttattatcat gacattaacc 7800
tataaaaata ggcgtatcac gaggccccct tcgtctcgcg cgtttcggtg atgacggtga 7860
aaacctctga cacatgcagc tcccggagac ggtcacagct tgtctgtaag cggatgccgg 7920
gagcagacaa gcccgtcagg gcgcgtcagc ggggtgttggc ggggtgtcggg gctggcttaa 7980
ctatgcggca tcagagcaga ttgtactgag agtgcacat atgcggtgtg aaataccgca 8040
cagatgcgta aggagaaaat accgcacatc gaaattgtaa acgttaatat tttgttaaaa 8100
ttcgcgttaa atttttgtta aatcagctca ttttttaacc aataggccga aatcggcaaa 8160
atcccttata aatcaaaaaga atagaccgag ataggggttg gtgtgttcc agtttggaac 8220
aagagtcacac tattaaagaa cgtggactcc aacgtcaaag ggcgaaaaac cgtctatcag 8280
ggcgtatggc cactacgtga accatcacc taatcaagtt ttttggggtc gaggtgccgt 8340
aaagcactaa atcggaaccc taaagggagc ccccgattta gagcttgacg gggaaagccg 8400
gcgaacgtgg cgagaaagga agggaagaaa gcgaaaggag cgggcgctag ggcgctggca 8460
agtgtagcgg tcacgctgcg cgtaaccacc acaccgccg cgcttaatgc gccgctacag 8520
ggcgcgtcgc gccattcgcc attcaggcta cgcaactgtt gggaagggcg atcgggtcgg 8580
gcctcttcgc tattacgcca gctggcgaag gggggatgtg ctgcaaggcg attaatgttg 8640
gtaacgccag ggttttccca gtcacgacgt tgtaaaacga cggccagtga att 8693

```

&lt;210&gt; 55

&lt;211&gt; 17135

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

<223> Description of Artificial sequence: DNA  
sequence of plasmid py6.0FlExBeta-Gal

&lt;220&gt;

<223> Position 1 to 2360 genomic DNA RARgamma locus,  
sense

&lt;220&gt;

&lt;223&gt; Position 2365 loxP1 site, sense

&lt;220&gt;

&lt;223&gt; Position 2445 lox511 site, sense

&lt;220&gt;

<223> Position 2480 to 2750 genomic DNA RARgamma locus,  
sense

&lt;220&gt;

&lt;223&gt; Position 2753 to 2901 exon 8 RARgamma locus, sense

&lt;220&gt;

<223> Position 2902 to 3395 genomic DNA RARgamma locus,  
sense

&lt;220&gt;

&lt;223&gt; Position 3400 to 6983 LacZ polyA gene, antisense

&lt;220&gt;

<223> Position 6984 to 6992 part exon 8 RARgamma locus,  
antisense

&lt;220&gt;

&lt;223&gt; Position 6993 to 7257 genomic DNA RARgamma locus,

antisense

&lt;220&gt;

&lt;223&gt; Position 7265 loxP1 site, antisense

&lt;220&gt;

&lt;223&gt; Position 7305 FRT site, sense

&lt;220&gt;

&lt;223&gt; Position 7345 to 9150 PGK Neo polyA gene, sense

&lt;220&gt;

&lt;223&gt; Position 9155 FRT site, sense

&lt;220&gt;

&lt;223&gt; Position 9265 lox511 site, antisense

&lt;220&gt;

&lt;223&gt; Position 9300 to 12175 genomic DNA RARGamma locus, sense

&lt;220&gt;

&lt;223&gt; Position 12175 to 17135 vector sequence

&lt;400&gt; 55

gaattcttaa	ccttgccatg	cccagttataa	tggggaaacta	ctgggcacat	tggctggcat	60
ctgagtcaga	aatatctggg	tatatgtgta	tgtgtgcgtg	ggggtgttgg	ctgtaaggct	120
cctagacagg	gactatataat	tcttatttag	gcctctggag	acattttggg	cttggtagct	180
caatattttt	gcatttctgt	ttgagccagt	aagtttggcc	agtagtgcac	ccctgtcaca	240
ctcagaggga	aggtggttta	aagtagggga	ggattgtgtg	ttactggctt	ttggatggaa	300
acttttagtgt	cctggtgttg	tgtgtactga	gtgcggtgtt	tggtagtaga	gctgttttagc	360
ccgtagctct	gtgacttgct	atctaccaac	atggagcact	catgccttga	tggttgtgct	420
ttcctctggt	taaaggtcca	gcccacaaacta	aggcagtgcc	cactgtagggt	ctgtctgctt	480
tggcgtctgt	gtcatgttgg	cctgcaaaaag	tgtgtgtctt	caaggagatt	gtgtgctaga	540
ttgtgagtc	aggcagctca	agctctgggc	cttgacagctg	ggagcgttta	cagcgggtta	600
taaagagttt	gtttgaagct	ccgctcagcc	tggccaggaa	tttcctcaat	ttcagcaatt	660
tgggctttta	aaggagaaaa	ccccgagccc	acccctctct	cctcagcagg	ggccccctgct	720
gagcccagga	gcggtgtccc	tgtgtctgagg	cttcagctca	gtgttgaaga	ggggaccag	780
aagaccctgc	cagctttgca	gaacctccac	ccacagcgac	ctcagagcca	tcgcatggca	840
ctttcagata	ccgggggccc	ggatgatgtg	ccagaggggt	gccgagagag	ggtgccggtg	900
ccattaggat	gggaaaggct	gcccaggggc	aggctctctg	gggccttcgt	cttataattg	960
gctgggtgctg	cctgccccat	gccagcctga	ccgcacccag	gccttgcgca	agagaggaaa	1020
tgaggaaatg	aggcagcgtc	ctgtgggtag	ggagggcgctc	agtgcaggag	agagtaccac	1080
cccacgctca	ggcctgtggg	gaccccagga	tgggctgaaa	gtgagggccg	gaaaggcctt	1140
ccaggcttcc	ccaaacctcc	cagcacctac	cattcaggca	acccacccc	cagtcttgaa	1200
taaactccct	gcaccttcc	gccccctttc	ttttgagggg	gaatctaact	ccagcaggat	1260
tcttatgcta	attgggtgcg	tgggggggtg	ggtgggtgga	gaaggcttcc	ctctttgtaa	1320
ggtgggtggag	ctggtctgga	accccccaacc	tataggctct	tctgtcctct	cactaccttg	1380
ggtctcagta	tggacttgtg	accaggtggg	ttacatggca	tgggaggaaa	gacgctggag	1440
gtcttcaaga	tccaccccc	accaccacca	cttttttcca	aattcgggca	gcaggtcctg	1500
caggctggat	agttttcaga	tatcctgagc	ttctgaggggt	gaacctata	ctctcccagc	1560
ctgtggcagg	cttgactctc	cagcagcctc	ctgtataaag	tgtgggctcc	cccaactctg	1620
ggccttggct	aggactccat	ataaactaca	atgactgttt	tctgaagcag	ttcaggaatg	1680
aagacagggt	tggaaagggt	ctggggcagc	tcccttcccc	ctcagctctg	tttaccaggt	1740
gtcacctgac	cctctgtcac	accccaaaact	gctcctggac	ctaagggcct	gagtgaatcc	1800
ctggttttcc	ccacagcttc	tttactataa	cgccacgtag	ctatggctcag	cgcccctgag	1860
agccttggct	ccccagtcag	ccgacactga	gccggtcact	cagctgctaa	tgctcctttt	1920
ctgacctgag	agcactttca	ggaatgactt	acattaagtc	attcagccag	gtgccagctg	1980
taggtagcct	gtttgctcca	tttgctttta	catttgcggc	cctcctcccc	acccccacc	2040
gccaccaaat	gctttcaggg	gaactctggg	attactagag	tcaggagtga	gccctaacct	2100
ttcagtttta	tgccccctcc	cgcccccttt	aaatattgtg	atggtgttct	gtctatatgt	2160
attttcgcgt	gccatttttg	tgcctggtgc	cacttggaaga	tggagagggg	aaccggttct	2220
gttagaactg	gcgattacaa	atggttgtaa	actaccatgt	agatgctggg	aatggaacct	2280



## 65691219amended.APP

tggtccttgg	gagagcagcc	agtgtcttta	cctgctgagt	cccaaccaat	cttcaacttt	2340
atggagcaga	agcagagaag	ttaagataac	ttcgtataat	gtatgctata	cgaagttatc	2400
caagcatcac	catcgacccg	ttaagccaag	catcaccatc	gaccataaac	ttcgtataat	2460
gtatactata	cgaagttatg	ttaactcctt	ggcctggaat	ttgcagaatt	gaacgttaat	2520
gtagaagagt	tggttttatg	gggggtggga	tggggtaggg	ggcagtgggt	gggcctgaaa	2580
tcccaacaag	ctacaaagag	tggtggtctg	ggctttccag	ggagtacctg	ttaagggctt	2640
atgcacaagg	gtgacaacag	cggtcaccag	caggtcccaa	gaaagagagg	ccatgggatg	2700
aggggtgctt	tgctcagctt	ctgcttatct	tctcatgctg	cttttcattc	agcgggtggag	2760
acacagagca	ccagctcgga	ggagatggta	cccagctctc	cctcaccccc	accacctcct	2820
cgggtctata	agccatgctt	tgtatgcaat	gacaagtctt	ctggctacca	ctatgggggtc	2880
agctcctgtg	aaggctgcaa	ggtgtgtatg	tggtgggggc	gggtgagttt	agcactcagt	2940
tgactgggct	tataccatca	gagatggaaa	cataaggctg	gctggcaatg	tagcttagta	3000
ggtagaatgc	ttgcttagca	tacttgagaa	ctcagcaaca	catcagagac	tctcttatgc	3060
caatgctcta	agggcagaag	caggcagatc	tctgtgagtt	caaggccagc	ctagtctaca	3120
gagctagttc	caggacagcc	agggctacac	aaagaaacct	gtcttgaaga	acaaaaaatt	3180
aatgaataag	tgattagata	aataaaaaatc	gttttaaagg	tagggggccc	aggtactgtg	3240
ttcatatgag	tgtttttgtc	tgtgtggggg	gagggactgc	tttgggcata	aatgagtgc	3300
tggttgggct	aggtgctgag	gacctagctc	agtgggtgaa	tgcttacagc	atagtgtaca	3360
gaaggtttga	tagtgtgttg	tgtatatagg	catggtacga	tccactagtt	ctagtagaca	3420
tgataagata	acattgatga	gtctagttag	tttggaacaa	ccacaactag	aatgcagtga	3480
aaaaaatgct	ttattttgtg	aattttgtat	gctattgctt	tattttgaac	cattataagc	3540
tgcaataaac	aagttccgag	tttgtcagaa	agcagaccac	acagcggttg	gaataatagc	3600
gagaacagag	aaatagcggc	aaaaataata	cccgatcac	ttttgctgat	atggttgatg	3660
tcattgtagcc	aaatcgggaa	aaacgggaag	taggctccca	tgataaaaaa	gtaaaagaaa	3720
aagaataaac	cgaacatcca	aaagtttgtg	ttttttaaat	agtacataat	ggatttcctt	3780
acgcgaaata	cgggcagaca	tggcctgccc	ggttattatt	atttttgaca	ccagaccaac	3840
tggttaatgct	agcgaccggc	gctcagctgg	aattccgccc	atactgacgg	gctccaggag	3900
tcgtcgccac	caatccccat	atggaaaccg	tcgatattca	gccatgtgcc	ttcttccgcg	3960
tgtagcagat	ggcgtatggc	ggtttccatc	agttgctggt	gactgtagcg	gctgatgttg	4020
aactggaagt	cgccgcgcca	ctggtgtggg	ccataattca	attcgcgcgt	cccgcagcgc	4080
agaccgtttt	cgctcgggaa	gacgtacggg	gtatacatgt	ctgacaatgg	cagatcccag	4140
cgggtcaaaa	aggcggcagt	aaggcggctc	ggtagttttt	cttgccggccc	taatccgagc	4200
cagttttacc	gctctgctac	gtcgccagc	tggtcgttca	ggccaatccg	cgccggatgc	4260
ggtgtatcgc	tcgccacttc	aacatcaacg	gtaatcgcca	tttgaccact	accatcaatc	4320
cggtaggttt	tccggctgat	aaataagggt	ttcccctgat	gctgccacgc	gtgagcgggc	4380
gtaatcagca	ccgcatcagc	aagtgtatct	gccgtgcact	gcaacaacgc	tgcttcggcc	4440
tggtaatggc	ccgccgcctt	ccagcgcttc	acccaggcgt	tagggccaat	gcgggtcgct	4500
tcacttacgc	caatgtcggt	atccagcggt	gcaggggtga	actgatcgcg	cagcggcgctc	4560
agcagttggt	ttttatcgcc	aatccacatc	agcctgactg	agcctgactg	gcgggttaaat	4620
tgccaacgct	tattaccag	ctcgatgcaa	aaatccattt	cgctgggtgt	cagatgcggg	4680
atggcggtgg	acgcggcggg	gagcgtcaca	ctgaggtttt	ccgccagacg	ccactgctgc	4740
caggcgctga	tgtgcccggc	ttctgaccat	gcggtcgcg	tcggttgac	tacgcgtact	4800
gtgagccaga	gttgcccggc	gctctccggc	tgcggtagtt	caggcagttc	aatcaactgt	4860
ttaccttgtg	gagcgacatc	cagaggcact	tcaccgcttg	ccagcggttc	accatccagc	4920
gccaccatcc	agtgaggag	ctcgttatcg	ctatgacgga	acaggtattc	gctgggtcact	4980
tcgatggttt	gcccggataa	acggaactgg	aaaaactgct	gctgggtgtt	tgcttccgctc	5040
agcgctggat	gcggcggtgc	gtcggcaaa	accagaccgt	tcatacagaa	ctggcgatcg	5100
ttcggcgtat	cgccaaaatc	accgccgtaa	gccgaccacg	ggttgccgtt	ttcatcatat	5160
ttaatcagcg	actgatccac	ccagtcccag	acgaagccgc	cctgtaaacg	gggatactga	5220
cgaaacgcct	gccagtattt	agcgaaaccc	ccaagactgt	tacctatcgc	gtgggcgtat	5280
tcgcaaagga	tcagcggggc	cgtctctcca	ggtagcgaaa	gccatttttt	gatggaccat	5340
ttcggcacag	ccgggaaggg	ctggtcttca	tccacgcgcg	cgtacatcgc	gcaaataata	5400
tcgggtggcg	tggtgtcggc	tccgccgcct	tcatactgca	ccgggcggga	aggatcgaca	5460
gatttgatcc	agcgatacag	cgcgctcgta	ttagcgccgt	ggcctgattc	attccccagc	5520
gaccagatga	tcacactcgg	gtgattacga	tcgcgctgca	ccattcgcgt	tacgcgttcg	5580
ctcatcgccg	gtagccagcg	cggatcatcg	gtcagacgat	tcattggcac	catgccgtgg	5640
gtttcaatat	tggtttcatc	caccacatac	aggccgtagc	ggtcgcacag	cgtgtaccac	5700
agcggatggt	tcggataatg	cgaacagcgc	acggcggtta	agttgttctg	cttcatcagc	5760
aggatatcct	gcaccatcgt	ctgctcatcc	atgacctgac	catgcagagg	atgatgctcg	5820
tgacggttaa	cgccctcgaat	cagcaacggc	ttgccgttca	gcagcagcag	accattttca	5880
atccgcacct	cgcggaacc	gacatcgacg	gtctctgctt	caatcagcgt	gccgtcggcg	5940
gtgtgcagtt	caaccacgcg	acgatagaga	tctgggattt	cggcgctcca	cagtttcggg	6000
ttttcgacgt	tcagacgtag	tgtgacgcga	tcggcataac	caccacgctc	atcgataatt	6060

## 65691219amended.APP

tcaccgccga	aaggcgcggt	gccgctggcg	acctgcgttt	caccctgcc	taaagaaact	6120
gttaccgcga	ggtagtcacg	caactcgccg	cacatctgaa	cttcagcctc	cagtacagcg	6180
cggctgaaat	catcattaaa	gcgagtgga	acatggaaat	cgctgatttg	tgtagtcggt	6240
ttatgcagca	acgagacgtc	acggaaaatg	ccgctcatcc	gccacatata	ctgatcttcc	6300
agataactgc	cgtaactcca	acgcagcacc	atcaccgcga	ggcggttttc	tccggcgcg	6360
aaaaatgcgc	tcagggtcaaa	ttcagacggc	aaacgactgt	cctggccgta	accgaccag	6420
cgcccggttc	accacagatg	aaacgcccag	ttaacgccat	caaaaataat	tcgcgtctgg	6480
ccttcctgta	gccagctttc	atcaacatta	aatgtgagcg	agtaacaacc	cgtcggattc	6540
tccgtgggaa	caaacggcgg	attgaccgta	atgggatagg	ttacgttggt	gtagatgggc	6600
gcacgcgaac	cgatgcctcg	ccagtttgag	gggacgacga	cagtatcggc	ctcaggaaga	6660
tcgcactcca	gccagctttc	cggcaccgct	tctggtgccg	gaaaccaggc	aaagcgccat	6720
tgcgcattca	ggctgcgcaa	ctgttgggaa	ggcgatcg	tgccggcctc	ttcgctatta	6780
cgccagctgg	cgaaaggggg	atgtgctgca	aggcgattaa	gttgggtaac	gccaggggtt	6840
tcccagtcac	gacgttgtaa	aacgacggcc	agtgccaaag	ttggactcaa	aaaacttagc	6900
aattctgaag	gaaagtcctt	ggggtcttct	accttttctc	tcttttttag	cggaattccg	6960
gaaaacttta	tccatactag	atgtctccac	cgctgaatga	aaagcagcat	gagaagataa	7020
gcagaagctg	agcagaagca	ccctcatccc	atggcctctc	tttcttgga	cctgctggtg	7080
accgctgttg	tcacccttgt	gcataagccc	ttaacaggta	ctccctggaa	agcccagacc	7140
accactcttt	gtagcttggt	gggatttcag	gccccaccac	tgccccctac	cccatcccca	7200
ccccataaa	gccaaactct	ctacattaac	gttcaattct	gcaaattcca	ggccaaggac	7260
cggataaact	cgatagctat	acattatagc	aagttatgcg	gccgggaagt	tcctattctc	7320
tagaaagtat	aggaacttcg	cggccaattc	taccgggtag	gggaggcgct	tttcccaagg	7380
cagtctggag	catgcgcttt	agcagccccg	ctgggcactt	ggcgctacac	aagtggcctc	7440
tggcctcgca	cacattccac	atccaccggt	aggcgccaac	cggctccggt	ctttggtggc	7500
cccttcgcgc	caccttctac	tcctccccta	gtcaggaagt	tccccccgc	cccgcagctc	7560
gcgtcgtgca	ggacgtgaca	aatggaagta	gcacgtctca	ctagtctcgt	gcagatggac	7620
agcaccgctg	agcaatggaa	gcgggtaggc	ctttggggca	gcggccaata	gcagctttgc	7680
tccttcgctt	tctgggtcca	gaggctggga	aggggtgggt	ccggggcgcg	gctcaggggc	7740
gggctcaggg	gcgggcgggc	gcccgaaggt	cctccggagg	cccggcattc	tgacgccttc	7800
aaaagcgcac	gtctgcgcgc	tggtctcctc	ttcctcatct	ccgggccttt	cgacctgcag	7860
ccaatatggg	atcggccatt	gaacaagatg	gattgcacgc	aggttctccg	gccgcttggt	7920
tggagaggct	attcggtcat	gactgggcac	aacagacaat	cggctgctct	gatgccgccg	7980
tgttccggct	gtcagcgag	gggcgcccgc	ttctttttgt	caagaccgac	ctgtccgggt	8040
cctgaatga	actgcaggac	gaggcagcgc	ggctatcggt	gctggccacg	acgggcgttc	8100
cttgccgagc	tgtgctcgac	gttgctactg	aagcgggaag	ggactggctg	ctattgggag	8160
aaagtccggg	gcaggatctc	ctgtcatctc	accttgctcc	tgccgagaaa	gtatccatca	8220
tggctgatgc	aatgcggcgg	ctgcatacgc	ttgatccggc	tacctgccca	ttcgaccacc	8280
aagcgaaaca	tcgcatcgag	cgagcacgta	ctcggatgga	agccggctct	gtcgatcagg	8340
atgatctgga	cgaagagcat	caggggctcg	cgccagccga	actgttcgcc	aggctcaagg	8400
cgcgcatgcc	cgacggcgag	gatctcgtcg	tgacccatgg	cgatgcctgc	ttgccgaata	8460
tcatggtgga	aaatggccgc	ttttctggat	tcatcgactg	tgcccgctg	ggtgtggcgg	8520
accgctatca	ggacatagcg	ttggctaccc	gtgatattgc	tgaagagctt	ggcggcgaat	8580
gggctgaccg	cttcctcggt	ctttacggta	tcgccgctcc	cgattcgag	cgcatcgctt	8640
tctatcgctt	tcttgacgag	ttcttctgag	gggatccgct	gtaagtctgc	agaaattgat	8700
gatctattaa	acaataaaga	tgtccactaa	aatggaagtt	tttctgtca	tactttgtta	8760
agaagggtga	gaacagagta	cctacatttt	gaatggaagg	attggagcta	cggggggtgg	8820
ggtgggggtg	gattagaata	aatgcctgct	ctttactgaa	ggctctttac	tattgcttta	8880
tgataatgtt	tcatagttgg	atatcataat	ttaaacaagc	aaaaccaatt	aagggccagc	8940
tcattcctcc	cactcatgat	ctatagatct	atagatctct	cgtgggatca	ttgtttttct	9000
cttgattccc	actttgtggt	tctaagtact	gtggtttcca	aatgtgtcag	tttcatagcc	9060
tgaagaacga	gatcagcagc	ctctgttcca	catacacttc	attctcagta	ttgttttgcc	9120
aagttcta	tccatcagaa	gctcgatacc	gtcgaggaag	ttcctattct	ctagaaagta	9180
taggaacttc	ccggccggga	agttcctata	ctttctagag	aataggaact	tcccggccgc	9240
caccgcggag	atctcaccat	cgaccataaa	cttcgtatag	tatacattat	acgaagttaa	9300
taccatgcgt	attcacacac	acacacaaac	acacaacaca	cacgcacgac	acgactggct	9360
aggctagctg	agggccaatt	gttttgcttg	agaaataactg	gtattccag	caccctgttt	9420
agtgacatc	ctgcttccaa	attcagggtc	tcttcagacg	cagcattcag	aaaaacatgg	9480
tgtatacatg	tcaccgtgac	aaaaactgta	tcatcaacaa	ggtcaccaga	aatcgatgcc	9540
agtactgcag	gctacaaaag	tgtttcgaag	tgggcatgtc	caaggaagg	aggctctctc	9600
ctatcctgtc	ctatcgtgtc	gtgcggttgt	ccactttgcc	gtccagcttc	cctgaccctg	9660
agatctcgcc	tgccctgtaa	ctgctttctt	ctccaagacc	attcccatta	gattagctct	9720
cttcaccctg	ttggtgtgag	cctgagatgg	aggagggttg	ggctcatccc	ttccctctcc	9780
tggtctttca	caggacagat	cctgagatgg	ctctgactgg	cccctccttt	ccactcccc	9840

## 65691219amended.APP

ccccaccat	tgtgctgcca	aggctataag	tggatatcct	gcctgcatat	cctgcccccc	9900
tccaaccccc	agctcctgca	gggcaaccgg	aagggcagga	tggagccgaa	ttggcctggg	9960
gagggagcat	ggctgtaggc	tctgggtggg	gctggggcaa	accagcctgg	aaataggaga	10020
ttatgtagca	gagagggaaa	ctaaggcact	aatacgtatt	tttaaagaga	actgagccca	10080
ttaagctagg	atgagagaag	acgcccacat	ggagaatttg	agccgggctg	ggtggcacac	10140
gcctttaatc	ccagcactcg	ggaggcagag	gcaggcggat	ttctgagttc	aaggccagcc	10200
tgggtctacaa	agtgaatttc	aggacagcca	gggctataca	gagaaaccct	gattcaaaaa	10260
acaaaaaaa	aaaaaaaaaa	aaaaagaaag	aaaagaaaaa	acaggagggt	cctgaggatc	10320
ctgatccttc	tttttgcttc	caaccccaag	ctgtaaggaa	cgatcgaaac	aagaagaaaa	10380
aggaggtaaa	agaggagggc	tcgcccagca	gctatgaact	gagtcacacg	ttagaggaa	10440
tcatcaccaa	ggtcagcaaa	gcccaccagg	agacttttcc	ctcactctgc	cagctgggca	10500
agtacaccac	ggtgaggagt	gggcagagtc	tgggtgaggg	cctcaggaac	gggcagtggg	10560
gagagtggcc	aggggaagcct	tcacggctca	cttcacccct	gcagaactcc	agtgcagatc	10620
accgggtgca	gctggacctg	gggctgtggg	acaagttcag	cgagctggcc	accaaattga	10680
tcatcaagat	tgtggagttt	gcgaagcggc	tgcctggttt	tacagggttc	agcattgccc	10740
accagatcac	gctgcttaag	gctgcttgct	tggacatcct	agtgaattag	gcagatgagt	10800
tctggaccac	tctgaccctt	ttccaccacc	acccccacca	caccctttag	ccctctcctc	10860
cacctaaagt	ctttttgtct	tagcagttcc	ctcctggttt	gcctaccctc	ccctttccaa	10920
tctcaagagt	cccacctctc	cgccttactc	ctccagttca	ggctttcctt	actgggaacc	10980
aaactcactt	aggaatcctt	cctcaggagc	agtactaacc	gttttcttta	ccccaccctt	11040
ccagatgctg	cggatctgta	caagggtatac	ccagagcagc	gacactatga	cattctcggg	11100
tgggctgacc	ctgaaccgaa	cccagatgca	caatgctggc	tttgggcccc	ttacagacct	11160
cgtctttgcc	tttgccgggc	agctgctgcc	cctggagatg	gatgacaccg	agactgggct	11220
acttagtgct	atctgcctca	tctgtggagg	tgcgggggcg	ccccctggtg	tctacatggg	11280
ctccctctcc	caccagactc	tatccagacc	ctatccccac	tctgaccagg	tggcaggtcg	11340
tctttttccc	tgggaattgt	tcctacagac	ttctcagctt	atgtatagtc	tttctggcta	11400
accaggctaa	gggaaaaaga	aggaggcaga	gtccggagaa	cgcagaagcc	ctggatacac	11460
tgctgagata	ggaatttaaat	gggagtata	ttctagagca	gcattcattgc	tgaggagtaa	11520
acacagggcc	ttatgtcagg	ggagctaacc	tggagggcta	agtgcagga	gtaaagagtg	11580
gatgagatag	ctttgaggcc	ctccaagtaa	ggtctgtcag	gcgtcagccg	cctgtcactg	11640
tgtcctaccg	tgcctcatcc	aatctccttg	tgtagaccga	atggacctgg	aagagcccg	11700
gaaggtggac	aaagtgcagg	agccccgtct	ggaagccctg	aggctctatg	cccggcgacg	11760
gagaccagc	caaccctaca	tgttcccaag	gatgtgatg	aaaatcaccg	acctccgggg	11820
catcagcact	aagggttagt	tctgagtcaa	ctctctctcc	ctccccagat	ctgcaggtct	11880
cctgagtcac	acaggtggac	aggcacaggc	agggggagag	aggaaccgag	aatccagcaa	11940
cctccatgga	gtcctggtgt	gtgtgtgttt	gtgtgtgttg	ctcggagagg	aaccttgtag	12000
catccataaa	ctaggcaaat	gctatctgac	aacctagctt	cctttacttt	ttatcattta	12060
tttattttat	atatgtaagt	accctgtagc	tgtcttcaga	cacaccagaa	gaaggcatca	12120
gatctcatta	cggatggttg	tgagccacca	tgtggttgct	gggaattgaa	ttcccgggtc	12180
gactcgagcg	gccgcactgt	gactgactga	cgatctgcct	cgcgcgtttc	ggtgatgacg	12240
gtgaaaacct	ctgacacatg	cagctcccgg	agacgggtcac	agcttgtctg	taagcggatg	12300
ctgggagcag	acaagcccgt	cagggcgctg	cagcgggtgt	tggcgggtgt	cggggcgcag	12360
ccatgaccct	gtcacgtagc	gatagcggag	tgtataattc	ttgaagacga	aagggcctcg	12420
tgatacgctc	atttttatag	gttaatgtca	tgataataat	ggtttcttag	acgtcaggtg	12480
gcacttttctg	gggaatgtg	cgggaaaccc	ctatttgttt	atttttctaa	atacattcaa	12540
atattgtatcc	gctcatgaga	caataaccct	gataaatgct	tcaataatat	tgaaaaagga	12600
agagtatgag	tattcaacat	ttccgtgtcg	cccttattcc	cttttttgcg	gcattttgcc	12660
ttcctgtttt	tgtcaccca	gaaacgctgg	tgaagtaaaa	agatgctgaa	gatcagttgg	12720
gtgcacgagt	gggttacatc	gaactggatc	tcaacagcgg	taagatcctt	gagagttttc	12780
gccccgaaga	acgtttttcca	atgatgagca	cttttaaaagt	tctgctatgt	ggcgcggtat	12840
tatcccgtgt	tgacgcgggg	caagagcaac	tcgggtcgccg	catacactat	tctcagaatg	12900
acttggttga	gtactcacca	gtcacagaaa	agcatcttac	ggatggcatg	acagtaagag	12960
aattatgcag	tgtgccata	accatgagtg	ataacactgc	ggccaactta	cttctgacaa	13020
cgatcggagg	accgaaggag	ctaaccgctt	ttttgcacaa	catgggggat	catgtaactc	13080
gccttgatcg	ttgggaaccg	gagctgaatg	aagccatacc	aaacgacgag	cgtgacacca	13140
cgatgcctgc	agcaaatgga	acaacgttgc	gcaaacattt	aactggcgaa	ctacttactc	13200
tagctttccc	gcaacaattta	atagactgga	tggaggcgga	taaagttgca	ggaccacttc	13260
tgcgctcggc	ccttcgggct	ggctggttta	ttgctgataa	atctggagcc	ggtgagcgtg	13320
ggtctcgcg	tatcattgca	gcactggggc	cagatggtaa	gccctcccgt	atcgtagtta	13380
tctacacgac	ggggagtcag	gcaactatgt	atgaacgaaa	tagacagatc	gctgagatag	13440
gtgcctcact	gattaaagcat	tggttaactg	cagaccaagt	ttactcatat	atactttaga	13500
ttgattttaa	actttacttt	taatttataa	ggatctaggt	gaagatcctt	tttgataatc	13560
tcatgaccaa	aatcccttaa	cgtgagtttt	cgttccactg	agcgtcagac	cccgtagaaa	13620

65691219amended.APP

agatcaaagg	atcttcttga	gatccttttt	ttctgcgctg	aatctgctgc	ttgcaaacaa	13680
aaaaaccacc	gctaccagcg	gtggtttgtt	tgccggatca	agagctacca	actctttttc	13740
cgaaggtaac	tggtctcagc	agagcgcaga	taccaaatat	tgctcttcta	gtgtagccgt	13800
agttaggcca	ccacttcaag	aactctgtag	caccgcctac	atacctcgct	ctgctaattcc	13860
tggtaccagt	ggctgctgcc	agtggcgata	agtcgtgtct	taccgggttg	gactcaagac	13920
gatagttacc	ggataaggcg	cagcggtcgg	gctgaacggg	gggttcgtgc	acacagccca	13980
gcttgagagc	aacgacctac	accgaactga	gatacctaca	gcgtgagcta	tgagaaagcg	14040
ccacgcttcc	cgaagggaga	aaggcggaca	ggtatccggg	aagcggcagg	gtcggaaacag	14100
gagagcgcac	gagggagctt	ccagggggaa	acgcctggta	tctttatagt	cctgtcgggt	14160
ttcgccacct	ctgacttgag	cgctgatttt	tgtgatgtct	gtcagggggg	cggagcctat	14220
ggaaaaacgc	cagcaacgcg	gcctttttac	ggttcctggc	cttttgctgg	cttttgctc	14280
acatgttctt	tcctgcttta	tccccgtatt	ctgtggataa	ccgtattacc	gcctttgagt	14340
gagctgatac	cgctcgccgc	agccgaacga	ccgagcgcag	cgagtacagt	agcgaggaag	14400
cgaagagcgc	cctgatgcgg	tattttctcc	ttacgcattc	gtgcggtatt	tcacaccgca	14460
taaattccga	caccatcgaa	tggtgcaaaa	cccttcgcgg	tatggcatga	tagcgcccg	14520
aagagagtca	attcagggtg	gtgaatgtga	aaccagtaac	gttatagcat	gtcgagagat	14580
atgccggtgt	ctcttatcag	accgtttccc	gcgtggtgaa	ccaggccagc	cacgtttctg	14640
cgaaaacgcg	ggaaaaagtg	gaagcggcga	tgccggagct	gaattacatt	cccaaccgcg	14700
tggcacaaca	actggcgggc	aaacagtcgt	tgctgattgg	cgttgccacc	tccagtcttg	14760
ccctgcacgc	gccgtcgcaa	attgtcgcgg	cgattaaatc	tcgcgccgat	caactgggtg	14820
ccagcgttgt	ggtgtcgatg	gtagaacgaa	gcggcgctga	agcctgtaaa	gcggcggtgc	14880
acaattcttt	cgcgcaacgc	gtcagtgggc	tgatcattaa	ctatccgctg	gatgaccagg	14940
atgccattgc	tgtggaagct	gcctgcacta	atgttccggc	gttatttctt	gatgtctctg	15000
accagacacc	catcaacagt	attattttct	cccatagaag	cggtacgcga	ctgggcgttg	15060
agcatctggt	cgcattgggt	caccagcaaa	tcgcgctggt	agcgggccca	ttagttctg	15120
tctcgccgcg	tctgctctg	gctggctggc	ataaatatct	cactcgcaat	caaattcagc	15180
cgatagcggg	acgggaaggg	gactggagtg	ccatgtccgg	ttttcaacaa	accatgcaaa	15240
tgctgaatga	gggcatcggt	cccaactgca	tgctgggtgc	caacgatcag	atggcgctgg	15300
gcgcaatgcg	cgccattacc	gagtcggggc	tgccgcttgg	tgccgatata	tcggtagtgg	15360
gatacgacga	taccgaagac	agctcatggt	atatcccgcc	gttaaccacc	atcaaacagg	15420
attttcgcct	gctggggcaa	accagcgtgg	accgcttgct	gcaactctct	cagggccagg	15480
cggtgaaggg	caatcagctg	ttgcccgtct	cactgggtgaa	aagaaaaacc	accctggcgc	15540
ccaatacgca	aaccgcctct	ccccgcgctg	tgccgatttc	attaatgcag	ctggcacgac	15600
agggtttccg	actggaaagc	gggcagtgag	cgcaacgcaa	ttaatgtgag	ttagctcact	15660
cattaggcac	cccaggcttt	acactttatg	cttcgggctc	gtatgtttgt	tggaattgtg	15720
agcggataac	aatttcacac	aggaaacagc	tatgaccatg	attacggatt	cactggccgt	15780
cgttttacaa	cgctcgtagt	gggaaaaacc	tgccggttacc	caacttaatc	gccttgacgc	15840
acatccccct	ttcgccagct	ggcgtaatag	cgaagaggcc	cgcaccgatc	gcccctccca	15900
acagttgcgc	agcctgaatg	gcgaatggcg	ctttgcctgg	tttcgggcac	cagaagcggt	15960
gccggaaagc	tggttgagtg	gcgatcttcc	tgaggccgat	actgtcgtcg	ttccctcaaa	16020
ctggcagatg	cacggttacg	atgcgcccac	ctacaccaac	gtaacctatc	ccattacggt	16080
caatccgcgc	tttgttccca	cggagaatcc	gacgggttgt	tactcgctca	catttaattgt	16140
tgatgaaagc	tggttacagg	aaggccagac	gcgaattatt	tttgatggcg	ttggaattac	16200
gttatcgact	gcacgggtga	ccaatgcttc	tgccgctcag	cagccatcgg	aagctgtggt	16260
atggctgtgc	aggtcgtaaa	tcactgcata	attcgtgtcg	ctcaaggcgc	actcccgttc	16320
tgataaatgt	tttttgccgc	gacatcataa	cggttctggc	aaatattctg	aaatgagctg	16380
ttgacaattt	atcatcggct	cgtataatgt	gtggaattgt	gagcggataa	caatttcaca	16440
caggaaacag	tattcatgtc	ccctatacta	ggttatttga	aaattaaggg	ccttggtgcaa	16500
cccactcgac	ttctttttgga	atatcttgaa	gaaaaatatg	aagagcattt	gtatgagcgc	16560
gatgaagggt	ataaatggcg	aaacaaaaag	tttgaattgg	gtttggagtt	tcccaatctt	16620
ecttattata	ttgatggtga	tggttaaatta	acacagtcta	tgcccatcat	acgttatata	16680
gctgacaagc	acaacatggt	gggtggttgt	ccaaaagagc	gtgcagagat	ttcaatgctt	16740
gaaggagcgg	ttttggatat	tagatacggg	gtttcgagaa	ttgcatatag	taaagacttt	16800
gaaactctca	aagttgattt	tcttagcaag	ctacctgaaa	tgctgaaaat	gttcgaagat	16860
cgtttatgtc	ataaaaacata	tttaaattgt	gatcatagtaa	cccatacctga	cttcattgtt	16920
tatgacgctc	ttgatgttgt	tttatacatg	gacccaatgt	gcctggatgc	gttcccaaaa	16980
ttatgtttgt	ttaaaaaacg	tattgaagct	atccccacaa	ttgataagta	cttgaaatcc	17040
agcaagtata	tagcatggcc	tttgcagggc	tggaagacca	cgtttggtgg	tgccgaccat	17100
cttccaaaat	cggatctggt	tccgcgtgga	tcccc			17135

<210> 56

<211> 8934

<212> DNA  
 <213> Artificial sequence  
 <220>  
 <223> Description of Artificial sequence: DNA  
 sequence of plasmid pJMG  
 <220>  
 <223> Position 1 to 2240 vector sequence  
 <220>  
 <223> Position 2245 Frt site, sense  
 <220>  
 <223> Position 2285 loxP1 site, sense  
 <220>  
 <223> Position 2355 lox511 site, sense  
 <220>  
 <223> Position 2400 to 5952 NLS-LacZ polyA gene,  
 antisense  
 <220>  
 <223> Position 5960 to 6549 IRES, antisense  
 <220>  
 <223> Position 6550 to 7050 rabbit beta globin intron,  
 antisense  
 <220>  
 <223> Position 7060 loxP1 site, antisense  
 <220>  
 <223> Position 7115 to 7630 PGK promotor, sense  
 <220>  
 <223> Position 7638 to 8840 Neomycine resistance gene,  
 sense  
 <220>  
 <223> Position 8441 to 8480 synthetic splice donor site,  
 sense  
 <220>  
 <223> Position 8505 lox511 site, antisense  
 <220>  
 <223> Position 8540 Frtm site, antisense  
 <220>  
 <223> Position 8600 to 8934 vector sequence

<400> 56  
 gtggcacttt tcggggaaat gtgcgcggaa cccctatttg tttatttttc taaatacatt 60  
 caaatatgta tccgctcatg agacaataac cctgataaat gcttcaataa tattgaaaaa 120  
 ggaagagtat gagtattcaa catttccgtg tcgcccttat tccctttttt gcggcatttt 180  
 gccttcctgt ttttgctcac ccagaaacgc tggtgaaagt aaaagatgct gaagatcagt 240  
 tgggtgcacg agtgggttac atcgaactgg atctcaacag cggtaagatc cttgagagtt 300  
 ttcgccccga agaacgtttt ccaatgatga gcacttttaa agttctgcta tgtggcgcg 360  
 tattatcccg tattgacgcc gggcaagagc aactcggtcg ccgcatacac tattctcaga 420  
 atgacttggt tgagtactca ccagtcacag aaaagcatct tacggatggc atgacagtaa 480  
 gagaattatg cagtgtctgc ataaccatga gtgataacac tgcggccaac ttacttctga 540

## 65691219amended.APP

caacgatcgg	aggaccgaag	gagctaaccg	cttttttgca	caacatgggg	gatcatgtaa	600
ctcgccttga	tcgttgggaa	ccggagctga	atgaagccat	accaaacgac	gagcgtgaca	660
ccacgatgcc	tgtagcaatg	gcaacaacgt	tgcgcaaact	attaactggc	gaactactta	720
ctctagcttc	ccggcaacaa	ttaatagact	ggatggaggc	ggataaagtt	gcaggaccac	780
ttctgcgctc	ggcccttccg	gctggctggg	ttattgctga	taaatctgga	gccggtgagc	840
gtgggtctcg	cggtatcatt	gcagcactgg	ggccagatgg	taagccctcc	cgtatcgtag	900
ttatctacac	gacggggagt	caggcaacta	tggatgaacg	aaatagacag	atcgctgaga	960
taggtgcctc	actgattaag	cattggtaac	tgtagacca	agtttactca	tatatacttt	1020
agattgattt	aaaacttcat	ttttaattta	aaaggatcta	ggtgaagatc	ctttttgata	1080
atctcatgac	caaaatccct	taacgtgagt	tttcgttcca	ctgagcgtca	gaccccgtag	1140
aaaagatcaa	aggatcttct	tgagatcctt	tttttctgcg	cgtaatctgc	tgcttgcaaa	1200
caaaaaaacc	accgctacca	gcggtgggtt	gtttgccgga	tcaagagcta	ccaactcttt	1260
ttccgaaggt	aactggcttc	agcagagcgc	agataccaaa	tactgtcctt	ctagtgtagc	1320
cgtagttagg	ccaccacttc	aagaactctg	tagcaccgcc	tacatacctc	gctctgctaa	1380
tcctgtttacc	agtggctgct	gccagtggcg	ataagtctgt	tcttaccggg	ttggactcaa	1440
gacgatagtt	accggataag	gcgcagcggg	cggtctgaac	gggggggttcg	tgacacagc	1500
ccagcttgga	gcgaacgacc	tacaccgaac	tgagatacct	acagcgtgag	ctatgagaaa	1560
gcgccacgct	tcccgaaggg	agaaaggcgg	acaggtatcc	ggtaagcggc	agggtcggaa	1620
caggagagcg	cacgagggag	cttccagggg	gaaacgcctg	gtatctttat	agtcctgtcg	1680
ggtttcgcca	cctctgactt	gagcgtcgat	ttttgtgatg	ctcgtcaggg	gggaggagcc	1740
tatgaaaaaa	cgccagcaac	gcggcctttt	tacggttcct	ggccttttgc	tggccttttg	1800
ctcacatgtt	ctttcctgcg	ttatccccctg	attctgtgga	taaccgtatt	accgcctttg	1860
agttagctga	taccgctcgc	cgagccgaa	cgaccgagcg	cagcgagtca	gtgagcgagg	1920
aaagcggaaga	gcgccaata	cgaaaccgc	ctctccccgc	gcgttgccg	attcattaat	1980
gcagctggca	cgacaggttt	cccgaactgga	aagcgggcag	tgagcgcaac	gcaattaatg	2040
ttagtttagct	cactcattag	gcaccccgag	ctttacactt	tatgcttccg	gctcgtatgt	2100
tgtgtggaat	tgtgagcggg	taacaatttc	acacaggaaa	cagctatgac	catgattacg	2160
ccaagcgcgc	aattaaccct	cactaaaggg	aacaaaagct	ggagctccac	cgcggtggcg	2220
gccgctctac	gaggaattca	accagaagtt	cctattctct	agaaagtata	ggaacttcca	2280
gctcataact	tcgtataatg	tatgctatac	gaagttatcc	aagcatcacc	atatgcaaat	2340
gcctaccgga	ccatcataac	ttcgtataat	gtatactata	cgaagttata	agctctagtt	2400
ctagtagaca	tgataagata	cattgatgag	tttggacaaa	ccacaactag	aatgcagtga	2460
aaaaaatgct	ttatttggta	gctattgctt	gctattgctt	tatttgtaac	cattataagc	2520
tgcaataaac	aagtctcgag	tttgtcagaa	agcagaccaa	acagcggttg	gaataatagc	2580
gagaacagag	aaatagcggc	aaaaataata	cccgtatcac	ttttgctgat	atggttgatg	2640
tcagttagcc	aaatcgggaa	aaacgggaag	taggctccca	tgataaaaaa	gtaaaagaaa	2700
aagaataaac	cgaacatcca	aaagtttgtg	ttttttaaat	agtacataat	ggatttcctt	2760
acgcgaataa	cgggcagaca	tggcctgccc	ggttattatt	atttttgaca	ccagaccaac	2820
tggtaatggg	agcgaccggc	gctcagctgg	aatctcgccg	atactgacgg	gctccaggag	2880
tcgtcgccac	caatccccat	atggaaaccg	tcgatattca	gccatgtgcc	ttcttccgcg	2940
tgacgagat	ggcgatggct	ggtttccatc	agttgctggt	gactgtagcg	gctgatgttg	3000
aactggaagt	cgccgcgcca	ctggtgtggg	ccataattca	attcgcgcgt	cccgcagcgc	3060
agaccgtttt	cgctcgggaa	gacgtacggg	gtatacatgt	ctgacaatgg	cagatcccag	3120
cgggtcaaaa	aggcggcagt	aaggcggtcg	ggatagtttt	cttgcggccc	taatccgagc	3180
cagttttacc	gctctgctac	ctgcgccagc	tggcagttca	ggccaatccg	cgccggatgc	3240
gggtgatcgc	tcgccacttc	aacatcaacg	gtaatcgcca	tttgaccact	accatcaatc	3300
cggtaggttt	tccggctgat	aaataagggt	ttcccctgat	gctgccacgc	gtgagcggtc	3360
gtaatcagca	ccgcatcagc	aagtgtatct	gccgtgcact	gcaacaacgc	tgcttcggcc	3420
tggtaatggc	ccgccgcctt	ccagcgttcg	accagggcgt	taggggtcaat	gcgggtcgct	3480
tcacttacgc	caatgtcggt	atccagcggg	gcacgggtga	actgatcgcg	cagcggcgctc	3540
agcagttggt	ttttatcgcc	aatccacatc	tgtgaaagaa	agcctgactg	gcggttaaat	3600
tgccaacgct	tattaccag	ctcgatgcaa	aaatccattt	cgctgggtgg	cagatgcggg	3660
atggcggtgg	acgcggcggg	gagcgtcaca	ctgaggtttt	ccgccagacg	ccactgctgc	3720
caggcgctga	tgtgccggcg	ttctgacctt	gcggtcgcgt	tcggttgcac	tacgcgtact	3780
gtgagccaga	gttgccccgc	gctctccggc	tgcggtagtt	caggcagttc	aatcaactgt	3840
ttacctttgtg	gagcgacatc	cagaggcact	tcacggcttg	ccagcggcctt	accatccagc	3900
gccaccatcc	agtgaggag	ctcgttatcg	ctatgacgga	acaggtattc	gctggtcact	3960
tcgatgggtt	gcccggataa	acggaactgg	aaaaactgct	gctgggtgtt	tgcttccgctc	4020
agcgtggat	gcggcggtgcg	gtcggcaaaag	accagaccgt	tcatacagaa	ctggcgatcg	4080
ttcggcgat	cgccaaaatc	accgccgtaa	gccgaccacg	ggttgcccgtt	ttcatcata	4140
ttaatcagcg	actgattccac	ccagtcaccg	acgaagccgc	cctgtaaacg	gggatactga	4200
cgaaacgcct	gccagtattt	agcgaaacgg	ccaagactgt	taccatcgcg	gtgggcgtat	4260
tcgcaaaagga	tcagcgggcg	cgtctctcca	ggtagcgaaa	gccatttttt	gatggaccat	4320

## 65691219amended.APP

ttcggcacag	ccgggaaggg	ctggtcttca	tccacgcgcg	cgtacatcgg	gcaaataata	4380
tgggtggccg	tggtgtcggc	tccgccgcct	tcatactgca	ccgggcgggg	aggatcgaca	4440
gatttgatcc	agcgatacag	cgcgtcgtga	ttagcgccgt	ggcctgattc	attccccagc	4500
gaccagatga	tcacactcgg	gtgattacga	tcgcgctgca	ccattcgcgt	tacgcgttcg	4560
ctcatcgccg	gtagccagcg	cggatcatcg	gtcagacgat	tcattggcac	catgccgtgg	4620
gtttcaatat	tggtttcatc	caccacatac	aggccgtagc	ggtcgcacag	cgtgtaccac	4680
agcggatggt	tcggataatg	cgaacagcgc	acggcggtta	agttgtttctg	cttcatcagc	4740
aggatatcct	gcaccatcgt	ctgctcatcc	atgacctgac	catgcagagg	atgatgctcg	4800
tgacggttaa	cgccctcgaat	cagcaacggc	ttgccgttca	gcagcagcag	accatttttca	4860
atccgcacct	cgcggaaacc	gacatcgag	gcttctgctt	caatcagcgt	gccgtcggcg	4920
gtgtgcagtt	caaccaccgc	acgatagaga	ttcgggattt	cggcgctcca	cagtttcggg	4980
ttttcgacgt	tcagacgtag	tgtgacgcga	tcggcataac	caccacgctc	atcgataatt	5040
tcaccgccga	aaggcgcggt	gccgctggcg	acctgcgttt	caccctgccca	taaagaaact	5100
gttaccgcga	ggtagtcacg	caactcgccg	cacatctgaa	cttcagcctc	cagtacagcg	5160
cggctgaaat	catcataaa	gcgagtggca	acctggaaat	cgctgatttg	tgtagtcggt	5220
ttatgcagca	acgagacgtc	acggaaaatg	ccgctcatcc	gccacatatc	ctgatcttcc	5280
agataactgc	cgtcactcca	acgcagcacc	atcaccgcga	ggcggttttc	tccggcgcg	5340
aaaaatgcgc	tcaggtcaaa	ttcagacggc	aaacgactgt	cctggccgta	accgaccag	5400
cgcccggttc	accacagatg	aaacgcccag	ttaacgccat	caaaaataat	tcgcgtcttg	5460
ccttctctga	gccagctttc	atcaacatta	aatgtgagcg	agtaacaacc	cgtcggattc	5520
tccgtgggaa	caaacggcgg	attgaccgtg	attggatagg	ttacgttggt	gtagatgggc	5580
gcactcgtaac	cgtgcactcg	ccagtttgag	gggacgacga	cagtatcggc	ctcaggaaga	5640
tcgactcca	gccagctttc	cggcaccgct	tctggtgccg	gaaaccaggc	aaagcgccat	5700
tcgccattca	ggctgcgcaa	ctgttgggaa	gggcgatcgg	tgcgggcctc	ttcgctatta	5760
cgccagctgg	cgaagggggg	atgtgtcgca	aggcgattaa	gttgggtaac	gccagggttt	5820
tcccagtcac	gacgttgtaa	aacgacggcc	agtgccaaag	ttggactcaa	aaaacttagc	5880
aattctgaag	gaaagtcctt	ggggtcttct	acctttctct	tcttttttgc	ggaattccgg	5940
aaaactttat	ccatggttgt	ggctagctta	tcattgtgtt	tttcaaagga	aaaccacgtc	6000
cccgtggttc	ggggggccta	gacgtttttt	taacctcgac	taaacacatg	taaagcatgt	6060
gcaccgaggc	cccagatcag	atcccataca	atgggggtacc	ttctgggcat	ccttcagccc	6120
cttgttgaat	acgcttgagg	agagccattt	gactctttcc	acaactatcc	aactcacaac	6180
gtggcactgg	ggttgtgcgg	cctttgcagg	tgtatcttat	acacgtgggt	tttggccgca	6240
gaggcacctg	tcgccagggtg	gggggttccg	gtgcctgcaa	agggctcgta	cagacgttgt	6300
ttgtcttcaa	gaagctttca	gaggaactgc	ttccttcacg	acattcaaca	gaccttgcac	6360
tcctttggcg	agaggggaaa	gacccctagg	aatgctcgtc	aagaagacag	ggccagggtt	6420
ccgggcccctc	acattgccaa	aagacggcaa	tatggtggaa	aataacatat	agacaaacgc	6480
acaccggcct	tattccaagc	ggcttcggcc	agtaacgtta	gggggggggg	agggagaggg	6540
gcggaattcc	ctatagttag	tcgtattaca	attctttgcc	aaaatgatga	gacagcaca	6600
taaccagcac	gttgcccagg	agctgtagga	aaaagaagaa	ggcatgaaca	tggttagcag	6660
aggggcccgg	tttggactca	gagtatttta	tcctcatctc	aaacagtgtg	tatcattgta	6720
accataaaga	gaaaggcagg	atgatgacca	ggatgtagtt	gtttctacca	ataagaatat	6780
ttccacgccca	gccagaattt	atatgcagaa	atattctacc	ttatcattta	attataacaa	6840
ttgtttctcta	aaactgtgct	gaagtacaat	ataatatacc	ctgattgcct	tgaaaaaaaa	6900
gtgattagag	aaagtactta	caatctgaca	ataaacaata	agtgaattta	aaaatttcgt	6960
acaaatgcaa	gctaaagttt	aacgaaaaag	ttacagaaaa	tgaaaagaaa	ataagaggag	7020
acaatgggtg	tcaacagagt	gcaaattcca	ggccaaggaa	taacttcgta	tagcatacat	7080
tatacgaagt	tatgcggccg	atccccgggc	tgcagggaatt	ctaccgggta	ggggaggcgc	7140
ttttcccaag	gcagtctgga	gcatgcgctt	tagcagcccc	gctgggcact	tggcgctaca	7200
caagtggcct	ctggcctcgc	acacattcca	catccaccgg	taggcgccaa	ccggctccgt	7260
tctttggtgg	ccccttcgcg	ccaccttcta	ctcctcccct	agtcaggaa	ttcccccccg	7320
ccccgcagct	cgcgtcgtgc	aggacgtgac	aaatggaagt	agcacgtctc	actagtctcg	7380
tgcagatgga	cagcaccgct	gagcaatgga	agcgggtagg	cctttggggc	agcggccaat	7440
agcagctttg	ctccttcgct	ttctgggctc	agaggctggg	aaggggtggg	tccggggcg	7500
ggctcagggg	cgggctcagg	ggcggggcgg	gcgcccgaag	gtcctccgga	gcccggcatt	7560
ctgcacgctt	caaaaagcga	cgtctgcgcg	gctgtttctc	tcttctctcat	ctccgggcct	7620
ttcgactcgt	agccaatatg	ggatcggcca	ttgaacaaga	tggattgcac	gcaggttctc	7680
cggccgcttg	ggtaggagag	ctattcggct	atgactgggc	acaacagaca	atcggtgct	7740
ctgatgccgc	cgtgttccgg	ctgtcagcgc	aggggcgccc	ggttcttttt	gtcaagaccg	7800
acctgtccgg	tgccctgaat	gaactgcagg	acgaggcagc	gcggctatcg	tggctggcca	7860
cgacgggcgt	tccttgcgca	gctgtgctcg	acgttgtcac	tgaagcggga	agggactggc	7920
tgctattggg	cgaagtgcag	gggcaggatc	tcctgtcatc	tcaccttgct	cctgccgaga	7980
aagtattccat	gcaatgcgat	gcatgcgggc	ggctgcatac	gcttgatccg	gctacctgcc	8040
cattcgacca	ccaagcgaaa	catcgcacgc	agcgagcacg	tactcggtatg	gaagccggctc	8100

65691219amended.APP

ttgtcgatca	ggatgatctg	gacgaagagc	atcaggggct	cgcgccagcc	gaactgttcg	8160
ccaggctcaa	ggcgcgcatg	cccgaaggcg	aggatctcgt	cgtgacccat	ggcgatgcct	8220
gcttgccgaa	tatcatggtg	gaaaatggcc	gcttttctgg	attcatcgac	tgtggccggc	8280
tgggtgtggc	ggaccgctat	caggacatag	cgttggctac	ccgtgatatt	gctgaagagc	8340
ttggcggcga	atgggctgac	cgcttcctcg	tgctttacgg	tatcgccgct	cccgattcgc	8400
agcgcatcgc	cttctatcgc	cttcttgacg	agttcttctg	actgtaaaac	gacggccagt	8460
caggtaagtc	tcgagcgggc	gatatcaagc	ttatcgatac	cggataaact	tcgtatagta	8520
tacattatac	gaagtattga	gaagttccta	atctatttga	agtataggaa	cttcgcggcc	8580
gcatcgacct	cgaggggggg	cccgggcttt	ccccgtcaag	ctctaaatcg	ggggctccct	8640
ttagggttcc	gatttagtgc	tttacggcac	ctcgacccca	aaaaacttga	ttaggggtgat	8700
ggttcacgta	gtgggccatc	gccctgatag	acggtttttc	gccctttgac	gttggagtcc	8760
acgtttctta	atagtggact	cttgttccaa	actggaacaa	cactcaacc	tatctcggtc	8820
tattcttttg	atttataaag	gattttgccc	atttcggcct	attggttaaa	aaatgagctg	8880
atttaacaaa	aatttaacgc	gaattttaac	aaaatattaa	cgcttacaat	ttag	8934

<210> 57

<211> 20

<212> DNA

<213> Artificial sequence

<220>

<223> Description of Artificial sequence: OBS  
synthetic oligonucleotide

<400> 57

ctgtaaaacg acggccagtc

20